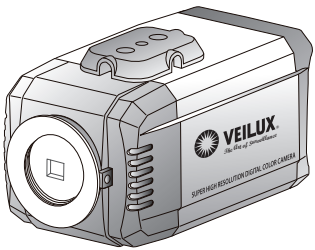
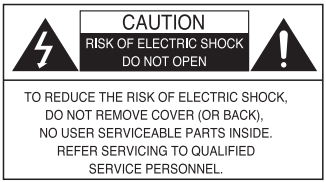
700TVL WDR•3D DNR CAMERA

700TVL
SUPER WDR/3D DNR
STANDARD CAMERA
USER'S MANUAL



- 1/3" 960H IT CCD
- High Resolution 700TV Lines
- WDR(Wide Dynamic Range)
- 3D DNR(Digital Noise Reduction)
- Sens-Up Function(x512)
- Eclipse Function
- Zero Defect
- Day & Night (ICR-Optional)
- Motion Detection
- Back Light Compensation
- RS485 / PELCO-D
- Privacy Mask(Polygonal,8 Colors)
- O.S.D menu function

960H/SP 001


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK),
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.

The lightning flash with an arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

INFORMATION - This equipment has been tested and found to comply with limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

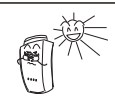
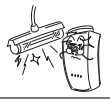
WARNING - Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

CAUTION : To prevent electric shock and risk of fire hazards:

- Do NOT use power sources other than that specified.
- Do NOT expose this appliance to rain or moisture.

This installation should be made by a qualified service person and should conform to all local codes.

Precaution

	Do not Keep the camera face to strong light directly
	Do not install the camera in extreme temperature conditions.
	Do not disassemble the camera even if troubles happened
	To avoid malfunctions, never use the camera close to a gas or oil leak
	Do not drop the camera or subject them to physical shocks.
	Do not expose the camera to rain or spill beverage on it.
	Do not install the camera under unstable lighting conditions
	Do not install or use the camera in an environment where the humidity is high

1. Features

WDR(Wide Dynamic Range)
Delivers a powerful Wide Dynamic Range to the camera which provides superior images, internally and externally, even under extreme light and dark contracts. It automatically compensates the necessary light levels to get detailed information in the dark part of the image without saturation from the bright part. It enables the WDR function to be very efficient, using a normal CCD, by using a Dual Shutter (long & short shutter) algorithm, a specialised AE (Auto Exposure) and intelligent image processing.

700 TVL ULTRA HIGH RESOLUTION
The horizontal resolution of 700 TV Lines with 960H IT CCD. It gives a vivid image output with super high horizontal resolution using our own De-Mosaic Interpolation algorithm and a specialised built-in sharpness filter.

3D DNR(Digital Noise Reduction)
Achieves excellent 3D-DNR (3-Dimensional Digital Noise Reduction) function using upgraded 3D filtering. This function is automatically enabled when the camera is being used and provides clear and superior images in very low light luminance. Normally video noise increases in low light conditions, while the gain level of the amplifier increases. It compensates for the dynamic noise using the inactive information of a normal frame

ZERO DEFECT
Adaptive Defect Correction delivers clear picture capture in very low light luminance using two algorithms for defect pixel compensation.

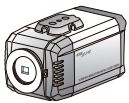
Sens-Up(x512, DSS)
Achieves high quality pictures by supporting a long exposure time - more than 1/50second - and enables recognition of the shape and color of a suspended object under no light conditions - in cases where exposure time is greater than 8 seconds (x512).

POLYGONAL PRIVACY MASKING(Polygonal, 8colors)
Ensures privacy protection for private and specific areas on the video signal output using a polygonal masking function. It allows the size and position of the masking areas to be controlled very easily, and there are 8 mask areas which are user programmable - color, brightness and mosaic.

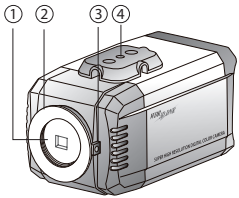
ECLIPSE
Enables the recognition of a visible car license plate by blocking unwanted light sources.

HIGH SENSITIVITY TRUE DAY&NIGHT
The Day & Night function delivers high quality color rendition and converts automatically into monochrome as luminance levels drop.

2. Components

Super WDR/3D DNR Camera	
L-Wrench	
Manual	
Terminal Block	

3. Names and Functions of Parts



1) Front

① Lens protection cap
Please cover while it is out of use.

② CS-Mount lens adaptor
Please attach the CS-Mount lens here.

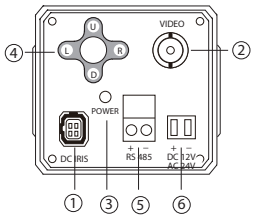
③ Back Focus clamp screw
Please loosen the clamp screw with a screwdriver before adjusting the Back focal length.

④ Mounting bracket screw hole
Please use the screw hole when fixing the camera onto the mounting bracket. Please use the clamp screw as specified in the picture.

1/4"-20 UNC (20 THREAD)
L:4.5mm±0.2mm (ISO standard),
or 0.197" (ASA standard)

The mounting bracket can be separated and attached to the top of the camera. In this instance please do not tighten the screw to a depth of more than 5mm, otherwise serious damage can influence in the inner parts of the camera.

DC12V, DC12V/AC24V



2) Back

① Auto iris lens connector
This is the connection terminal for auto iris lens.

② Video composite Out

③ Power lamp
Light up when the correct power is supplied to the camera.

④ Setting button(OSD Joystick)
ENTER button : Use for menu display. This button can be used to confirm settings after changing the value of the selected function or current conditions.
UP & DOWN buttons : Use for selecting items by moving the cursor up or down on the menu screen.
LEFT(L) & RIGHT(R) buttons : Use when changing item values by moving the cursor to the left or right on the menu screen.

⑤ RS-485(Option)
The camera can be controlled by using external controller like a remote controller.

⑥ Power input terminal
Connect to the power appropriate to each power requirement, 12V DC or 24V AC or 90~240V AC.

4. Installation

1) Lens

Lenses are sold separately. Lenses such as auto iris lens, CS-Mount lens and C-Mount lens can be used.

Note) How to operate this product effectively

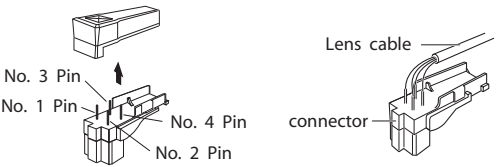
- Please keep lens clean
- Any foreign objects and finger marks on the lens can cause inferior image quality in low light conditions.

① When using an auto iris lens
Please peel off about 8mm of the outer skin of the auto iris lens cable.

Please peel off about 2mm of the outer skin of the insulated conductor inside the lens cable.

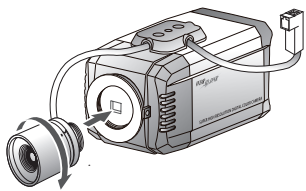
Please remove the cover of the auto iris lens connection plug and solder the lens cable to the connector pin in the plug.

Pin No.	LENS
	DC
No.1 Pin	Damping-
No.2 Pin	Damping+
No.3 Pin	Drive+
No.4 Pin	Drive-



Please fit the auto iris lens connector plug and take off the lens protection cap, and then attach the auto iris lens to the camera by screwing it in clockwise.

Please insert the connection plug that is connected to the auto iris lens cable into the auto iris lens connector, which is located on the back of the camera.



② When using a CS-Mount lens
Please take off the lens protection cap and attach the CS-Mount lens to the camera by screwing it in clockwise.

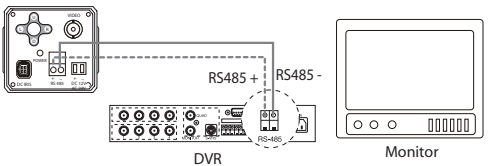
③ When using a C-Mount lens
Please take off the lens protection cap and attach the C-mount adaptor.

2) Power

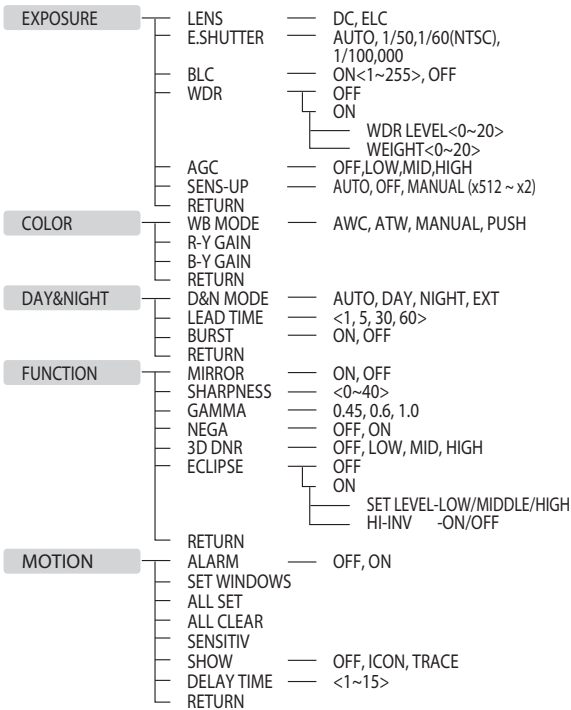
* Be sure to connect power only after all installation is complete.
* Please use a power adaptor that meets the required standards.
[Recommended - Voltage : +/-20%, Current : Adapter with rated power of 2 times(than real using current]

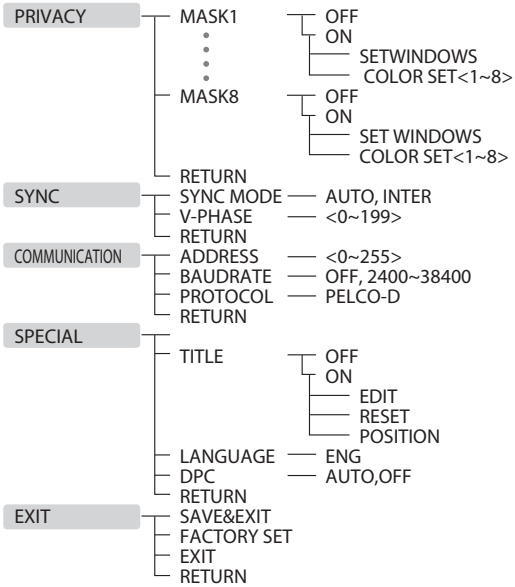
3) RS485(option)

*The camera can be controlled by using external controllers like a remote controller.
* Connect the RS485 cable(+, -) to the connection port of the 485 control that is connected to the DVR or System Controller.
* Use the PELCO-D protocol.
* When controlling RS485, please check the following:
- Communication Speed : 4800 bps
- Data Bit Number : 8 bits
- Stop Bit Number : 1 bit
- Parity Bit : none



5. Setup Menu Flow

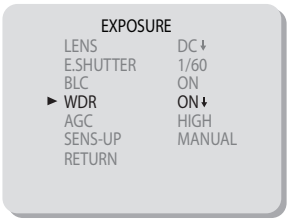



PRIVACY
MASK1
OFF
ON
SETWINDOWS
COLOR SET<1~8>
MASK8
OFF
ON
SET WINDOWS
COLOR SET<1~8>
RETURN
SYNC
SYNC MODE
AUTO, INTER
V-PHASE
<0~199>
RETURN
COMMUNICATION
ADDRESS
<0~255>
BAUDRATE
OFF, 2400~38400
PROTOCOL
PELCO-D
RETURN
SPECIAL
TITLE
OFF
ON
EDIT
RESET
POSITION
LANGUAGE
ENG
DPC
AUTO,OFF
RETURN
EXIT
SAVE&EXIT
FACTORY SET
EXIT
RETURN

6. Special Features

1. WDR(Wide Dynamic Range)

Wide Dynamic Range is essential for capturing the images at all light levels.



1) WDR LEVEL :

You can set the WDR(Entry) LEVEL on the entry timing for this function. You have to set the level into low number if you need a WDR function just in more strong light.

On the contrary you have to set the level into high number if you need a WDR function just in normal conditions(or low light) without strong lights as like sunshine.

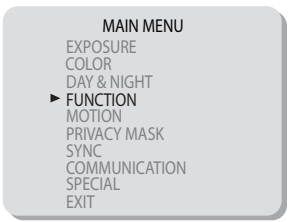
	0 2 4 6	8 10 12 14	16 18 20
WDR Entry Level (Day Time) (0~20)			
	Strong Sunshine Light (Day Time)	**Middle Light (Day Time)**	**Low Light (Day Time)**
	※Eclipse mode should be Off while you use WDR function. (Eclipse is just a special WDR function for car license plate)		

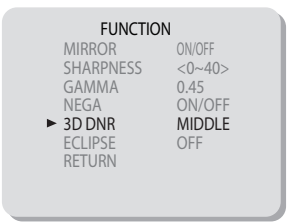
2) WEIGHT : This is a level to make the dark area more bright.
Low number for more dark condition and high number for more brightness condition.

2. 3D DNR(Digital Noise Reduction)

Select 3D DNR ON or OFF.
3D-DNR function reduce the background noise in a low luminance environment. Upgraded 3D filtering ensures even more clear image.

[DNR Level High : Picture image is more clear but Ghost is more increased.
DNR Level Low : Picture image is not clear but less Ghost.]

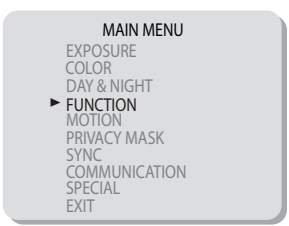


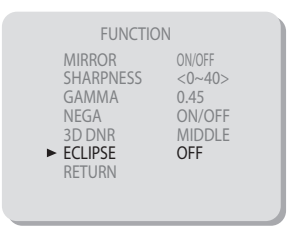


3. ECLIPSE

If there is a highlight within a limited environment such as car park, It makes it possible to review vehicle license plates by removing the highlight.

[Only used for car license plate in low light condition and the WDR in OSD menu should be Off mode while Eclipse work as On mode]





7. SPECIFICATIONS

TV System		NTSC	PAL
Sensor		1/3" 960H IT CCD	
Total Pixel		1020(H) X 508(V)	1020(H) X 596(V)
Effective Pixel		976(H) X 494(V)	976(H) X 582(V)
Synchronization	Internal	H/V 15.734/59.94Hz	H/V 15.625/50Hz
	Line Lock	H/V 15.750/60Hz	H/V 15.625/50Hz
Scanning System		2:1 Interlace	
Horizontal Resolution		700 TV Lines (Max.)	
Min. Illumination	Sens-Up Off	0.12Lux(15IRE), 0.2Lux(30IRE), 0.4Lux(50IRE) F1.2	
	Sens-Up On	0.0002Lux(15IRE), 0.0005Lux(30IRE), 0.0008Lux(50IRE) F1.2	
Video Output		1.0Vp-p/ 75ohm Video 0.714Vp-p	
γ Correction		0.45, 0.6, 1.0	
S/N		More than 52dB(AGC off)	
O.S.D		LENS,E-SHUTTER, BACKLIGHT,WDR, AGC, SENS-UP	
		WHITE-BALANCE, DAY&NIGHT, MOTION, MIRROR	
		SHARPNESS, GAMMA, DNR, ECLIPSE, PRIVACY	
		COMMUNICATION, SYNC, TITLE, LANGUAGE	
		DPC	
Electrical Shutter		1/60~1/100,000	1/50~1/100,000
Privacy Masking		8 Windows(Polygonal, 8 Colors)	
Day & Night		COLOR / BW / AUTO / EXT	
Motion Detection		ON / OFF	
Digital Zoom		x1.0 ~x10	
Sens-Up(Low Shutter)		OFF ~x512	
SYNC		AUTO / INTERNAL / DIGITAL LINE LOCK	
White Balance		ATW / AWC / MANUAL / PUSH	
WDR		ON / OFF(WDR LEVEL, WEIGHT)	
WDR Level		120dB Max.	
3D-DNR		ON / OFF(OFF, LOW, MID, HIGH)	
MIRROR		ON / OFF	
NEGA		ON / OFF	
ECLIPSE		ON / OFF	
AGC		LOW / MIDDLE / HIGH / OFF	
Lens		C / CS Mount	
Operating Temperature/Humidity		-20℃ ~60℃ /30% ~80%	
Storage Temperature/Humidity		-30℃ ~60℃ /20% ~90%	
Power(Max.)	DC / AC	DC 12V, 250mA / AC 24V, 110mA	
Dimension(mm)		61(W) x 55(H) x 106(L)mm	
Weight		Abt 460g	

Design and specifications are subject to change without notice.

PRODUCT WARRANTY CARD

1) ITEM # :
2) S/N # :
3) INSTALLATION CONDITION - Indoor ☐ / Outdoor ☐ - Power supply SPECIFICATION : DC12V ☐ / AC24V ☐ CURRENT _____ mA
4) TROUBLESHOOTING - No picture ☐ - Bad image ☐ - No power ☐ - Water damage ☐ - LED ON ☐ / OFF ☐ - ETC. : ☐
* Please keep this warranty card with the manual. * Please fill out this warranty card and send us this warranty card with the faulty units together.

■ Following cases can be charged even within the warrany period.

a. When defects are caused by user's carelessness.

b. When improper or unauthorized repairs are done or when the inside is modified or damaged.

c. Defects caused by natural disaster or power problem.

d. When the warranty card is not filled out or corrected unconfirmed.